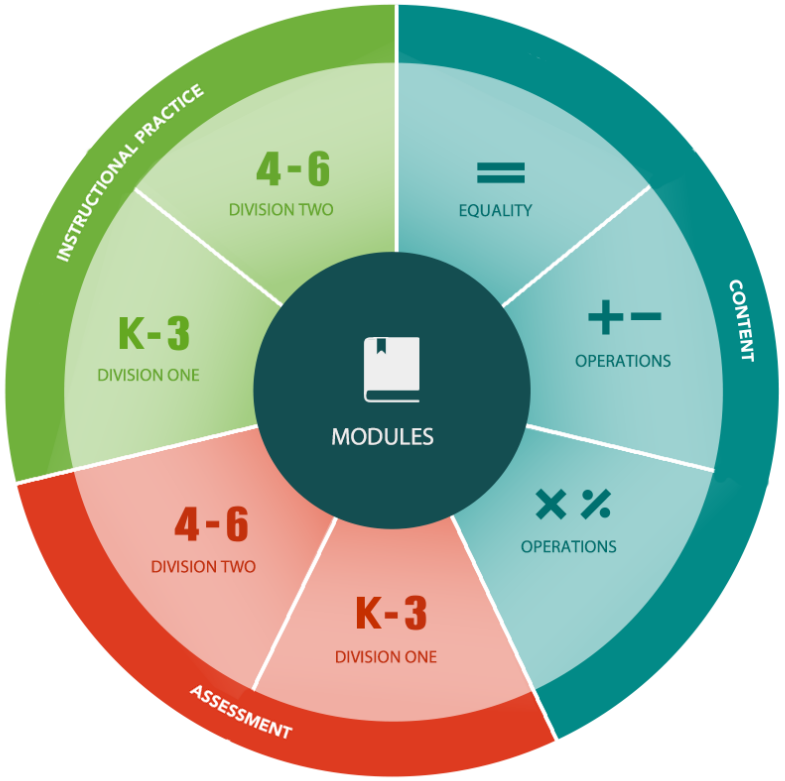
AlbertaRegionalConsortia

Dedicated to provision of professional learning opportunities at the local, regional and provincial levels

EMPLO-Elementary Mathematics Professional Learning Opportunities



Prepared by SAPDC Learning Facilitators

Vicki Glass

Cynthia Parr

Southern Alberta Professional Development Consortium

Alberta Regional Consortia

Elementary Mathematics Professional Learning
Apprentissage professionnel en mathématiques à l'élémentaire

Southern Alberta Professional Development Consortium

Easy access to EMPLO website through www.sapdc.ca

- Click on revolving banner for EMPL

While on SAPDC sign up for newsletter

Alberta Regional Consortia

Elementary Mathematics Professional Learning
Apprentissage professionnel en mathématiques à l'élémentaire

The Elementary Mathematics Professional Learning (EMPL) resources are a series of recorded webinars and learning guides that support teachers in developing deeper understanding of elementary mathematics in Alberta

Link

Developing Mathematical Fluency

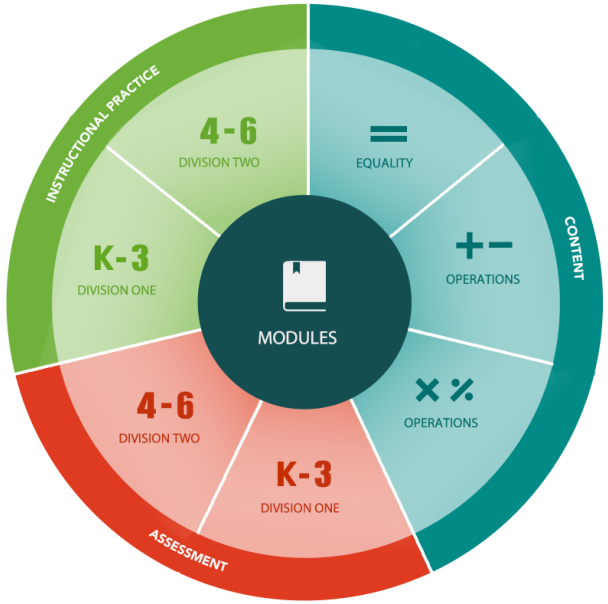
- "A ***deeper* understanding** of Mathematical fluency enables us to envision what it means for our students to be mathematically **proficient**, and to ***shift teaching practices*** that shift our teaching from a ***focus on content*** to a focus on ***application and understanding***"
  - ***Sue O'Connell and John San Giovanni***

    from Putting the Practices into Action

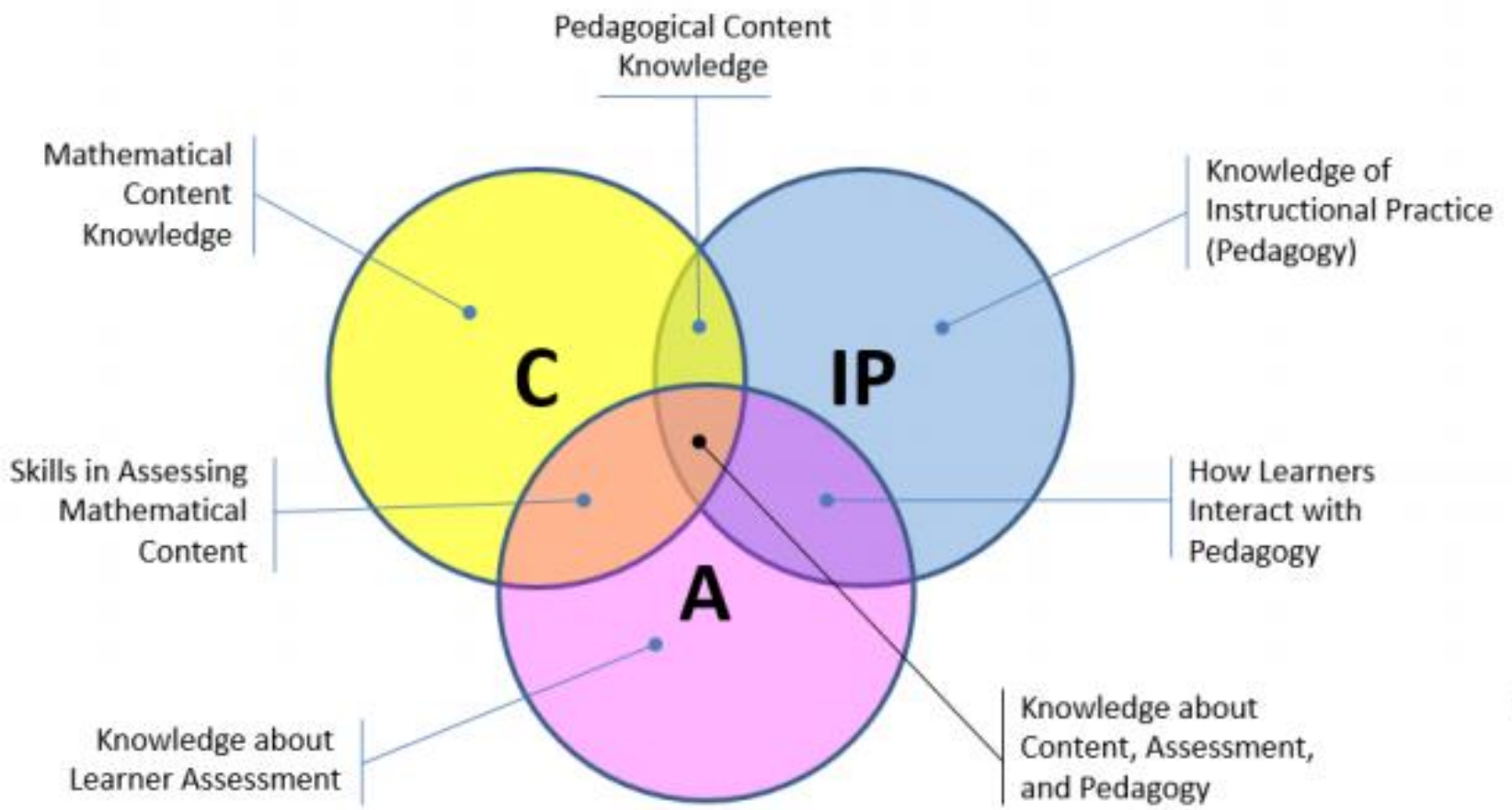
Relational vs Procedural Knowledge
Gas Example
Turn and Talk- shift

Developing Professional Capital Fullan and Hargreaves, cited in A Great School for All - ATA, 2012)

- The website is a collaborative effort involving
  - Classroom teachers
  - ATA staff
  - Post secondary
  - Math consultants
  - CASS
  - ARPDC representatives
- Funded through a grant from AB Education



Enhancing Professional Capital



Resources will enhance

- Teacher understanding of mathematical content and conceptual relationships
- Teacher instructional practice
- Formative and summative assessment practice
- Teacher-parent communication

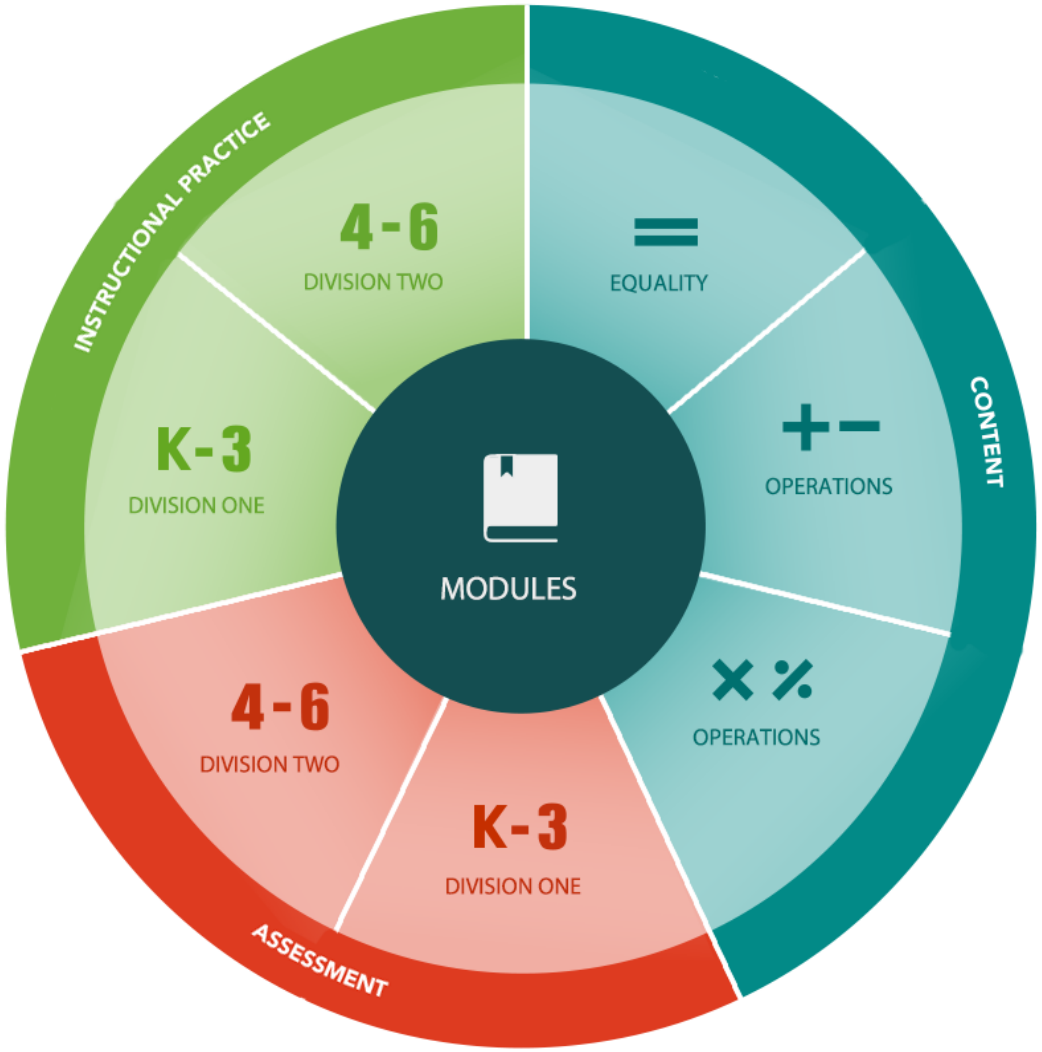
Guiding Questions for educators to consider

- What do I want my students to **learn**?
  - (based on the Alberta Program of Studies)
- How will I know, track, **evaluate**, and communicate how well they are learning it?
- What **activities**, **resources**, and **structures** will I select to further student **understanding**?

Curric +ZPD
Individuals
Learning visible

Webinars and resources have been developed for each of the areas

- Content
- Assessment
- Instructional Practices

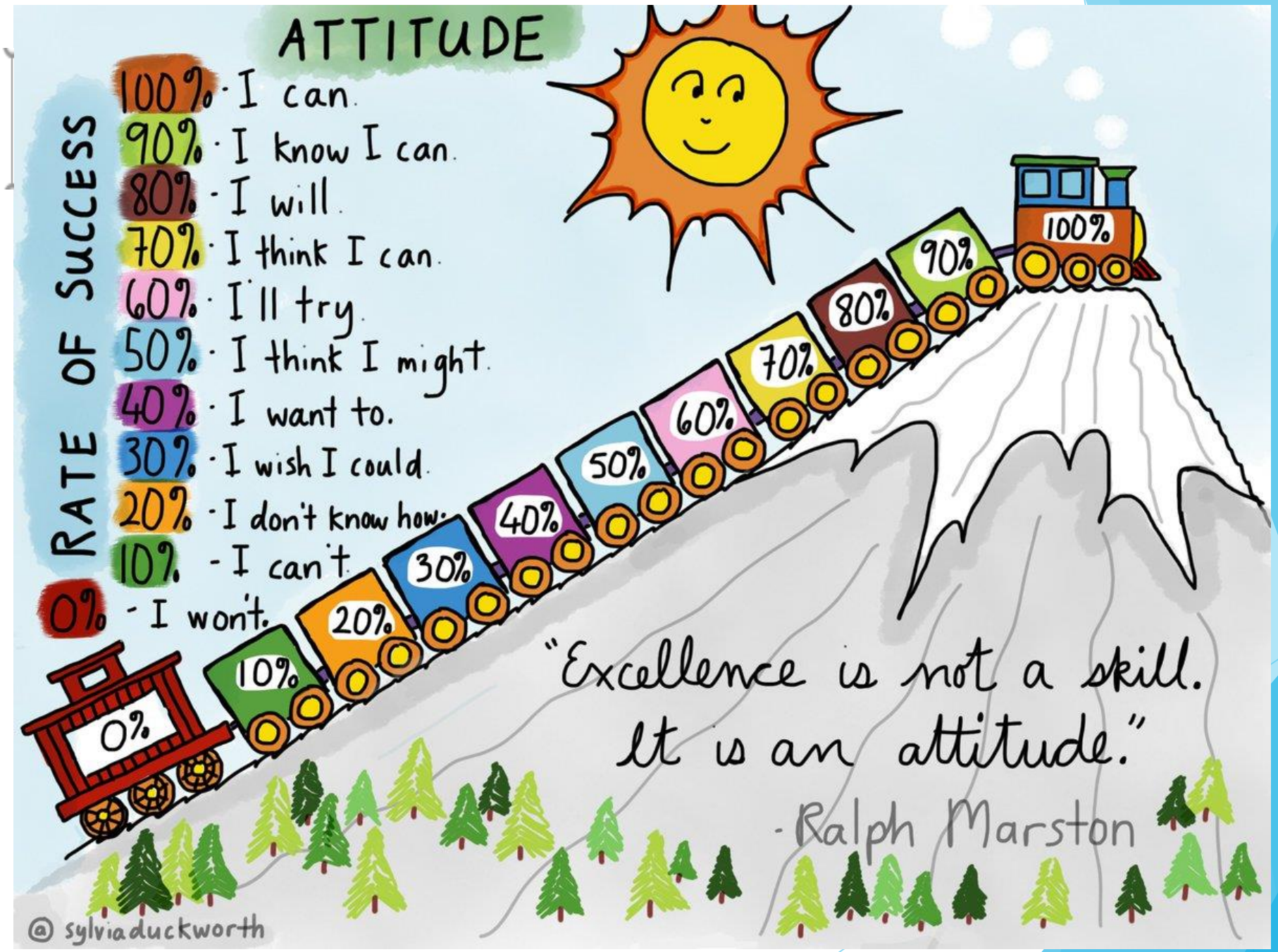


Follow us on twitter @EMPL_AB

Additional supports are being added as we collaborate provincially

We encourage you to visit regularly


@EMPL_AB


ATTITUDE
RATE OF Success
100% - I can.
90% - I know I can.
80% - I will.
70% - I think I can.
60% - I'll try.
50% - I think I might.
40% - I want to.
30% - I wish I could.
20% - I don't know how.
10% - I can't.
0% - I won't.
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
"Excellence is not a skill.
It is an attitude."
-Ralph Marston
@ sylviaduckworth

Key Understandings

- “Big Ideas”
- Why is this Concept Important?
- Teacher Background Knowledge
  - What prior understanding is necessary?
- What do I need to know as a teacher in order to be able to teach the concept(s)? Pdf guides
- Vocabulary

Game- I Love Math

K-9 Program of Studies

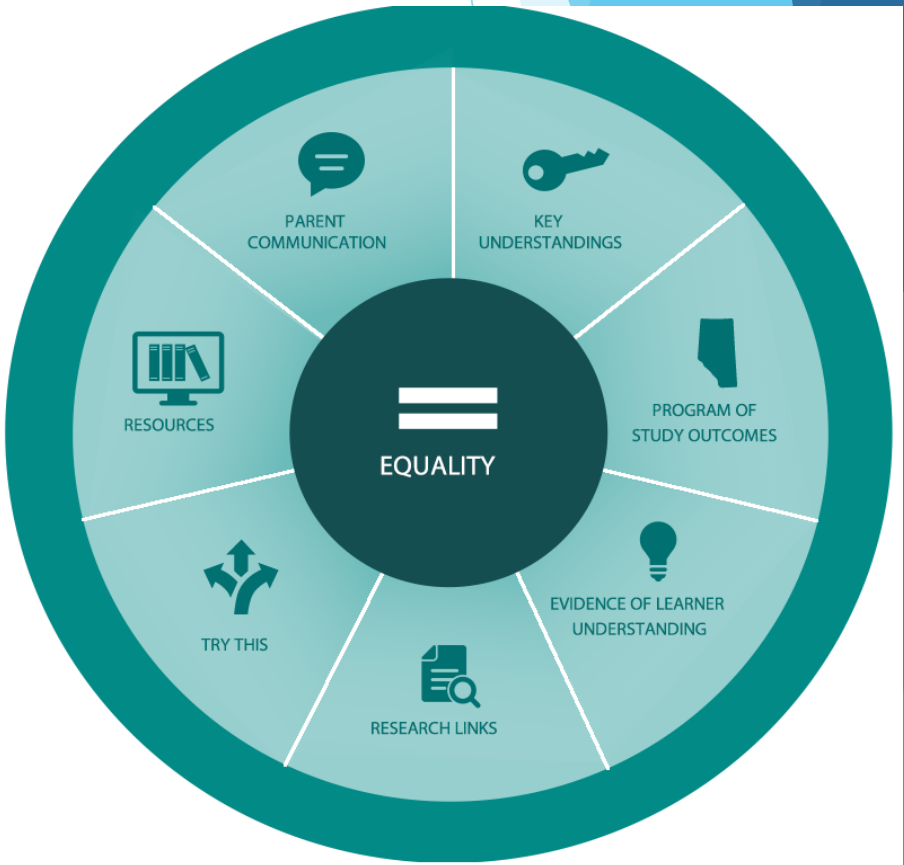
- (Key) Outcomes from the program of studies related to the concept (K-6)
  - If those understandings have not been achieved this resource allows you to quickly access supports that can be used to scaffold individual learning
- Includes a pdf of possible resources with suggestions for use

Evidence of Learner Understanding

- What level of understanding do your students have regarding the concept?
- Sample evidence is provided for each Big Idea in order to guide you when assessing your students' level of understanding.
  - Big Idea
  - What it might mean
  - Possible evidence of understanding

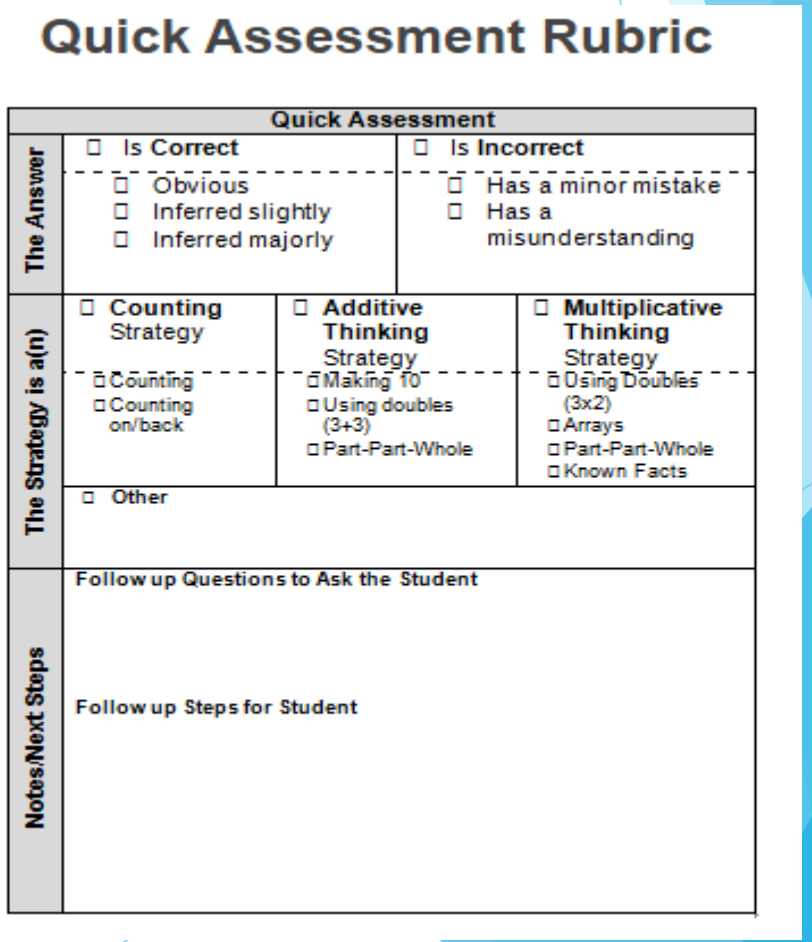
Research Links

- A synthesized list of research or articles will further enhance teacher capital



Try This

- Suggested activities to try/modify with your students
- Assessment Rubrics- in Pdf and Word
- Emphasis is on making the learning visible
- Activities include– Pdf, Word
  - and Exemplars



Quick Assessment Rubric

	Quick Assessment		
The Answer	☐ Is **Correct** ☐ Obvious ☐ Inferred slightly ☐ Inferred majorly		☐ Is **Incorrect** ☐ Has a minor mistake ☐ Has a misunderstanding
The Strategy is a(n)	☐ **Counting** Strategy ☐ Counting ☐ Counting on/back	☐ **Additive Thinking** Strategy ☐ Making 10 ☐ Using doubles (3+3) ☐ Part-Part-Whole	☐ **Multiplicative Thinking** Strategy ☐ Using Doubles (3x2) ☐ Arrays ☐ Part-Part-Whole ☐ Known Facts
	☐ **Other**		
Notes/Next Steps	**Follow up Questions to Ask the Student** **Follow up Steps for Student**		

Resources

- Resources are suggested by grade level
- The key learner outcomes at each grade level are also reviewed
- Links to resources and some teaching suggestions are included

  - *The use of authorized resources is not mandatory.*
  - *A broad range of learning resources may be used to meet the needs of all students.*
  - *Caution- Even when a resource is authorized, it does not mean that it aligns completely with AB Program of Studies*

Parent Communication

=
Problem solving
Spatial
Add a zero
Memorize vs understand

- Big Ideas
- Simple activities you can do with your child
- How the concept changes from year to year
- Misconceptions
- Vocabulary

- Suggestions for use may include:
  - Monthly parent bulletins/newsletters
  - Parent-Teacher Conference discussion/displays
  - Parent Information Nights

Presentation Resources NEW- (2016)

- Presentations are in PowerPoint format
- Encourage you to edit and adapt
- Intended to support anyone facilitating a PLC, a PD day or any other learning opportunities
- Flexibility to adapt for an hour, a half or a full day.

- SAPDC will continue to provide on-going support for
  - Administrators
  - Teachers
  - Educational Assistants
  - Parents/Trustees
  - Pre-service Teachers

Please contact your Learning Facilitator

- Cynthia.parr@sapdc.ca (West)
- Vicki.glass@sapdc.ca (East)
- Easy access to EMPLO website through www.sapdc.ca (Banners)
- Google: Elementary Mathematics Professional Learning

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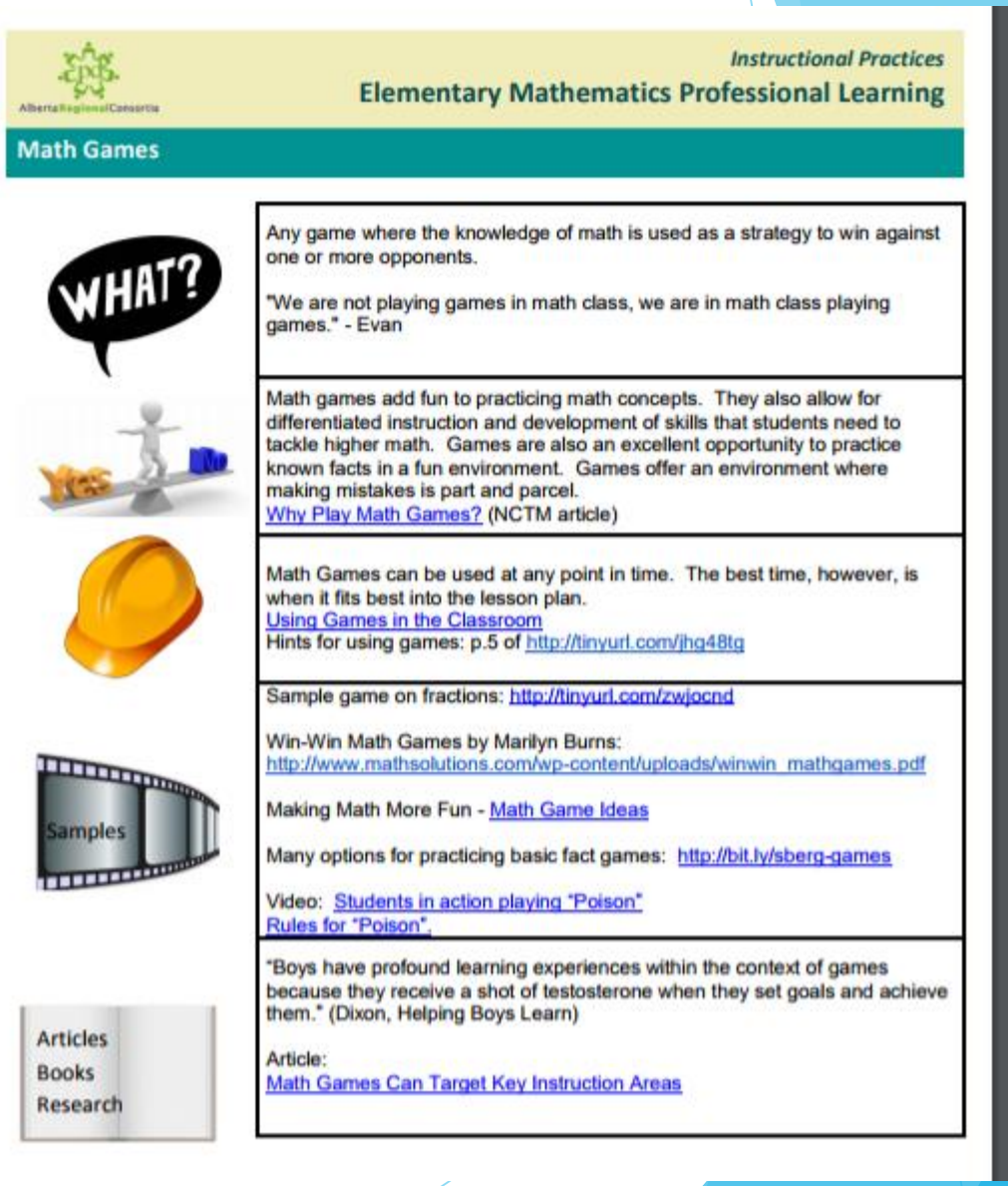
Instructional Practices

- Cooperative Learning
- Flipped Classroom
- Group Work
- Journaling
- My favorite No
- Non-permanent Surfaces
- Performance Tasks
- Problem Solving
- Math Games
- Inquiry-Based Learning
- Use of Manipulatives
- Math Centres
- Number Talks
- Open-ended Questions
- Project-Based Learning
- Understanding by Design



Instructional Practices

Elementary Mathematics Professional Learning

Math Games

Any game where the knowledge of math is used as a strategy to win against one or more opponents.

"We are not playing games in math class, we are in math class playing games." - Evan

Math games add fun to practicing math concepts. They also allow for differentiated instruction and development of skills that students need to tackle higher math. Games are also an excellent opportunity to practice known facts in a fun environment. Games offer an environment where making mistakes is part and parcel.
Why Play Math Games? (NCTM article)

Math Games can be used at any point in time. The best time, however, is when it fits best into the lesson plan.
Using Games in the Classroom
Hints for using games: p.5 of http://tinyurl.com/jhg48tg

Sample game on fractions: http://tinyurl.com/zwjocnd

Win-Win Math Games by Marilyn Burns:
http://www.mathsolutions.com/wp-content/uploads/winwin_mathgames.pdf

Making Math More Fun - Math Game Ideas

Many options for practicing basic fact games: http://bit.ly/sberg-games

Video: Students in action playing "Poison"
Rules for "Poison"

"Boys have profound learning experiences within the context of games because they receive a shot of testosterone when they set goals and achieve them." (Dixon, Helping Boys Learn)

Article:
Math Games Can Target Key Instruction Areas

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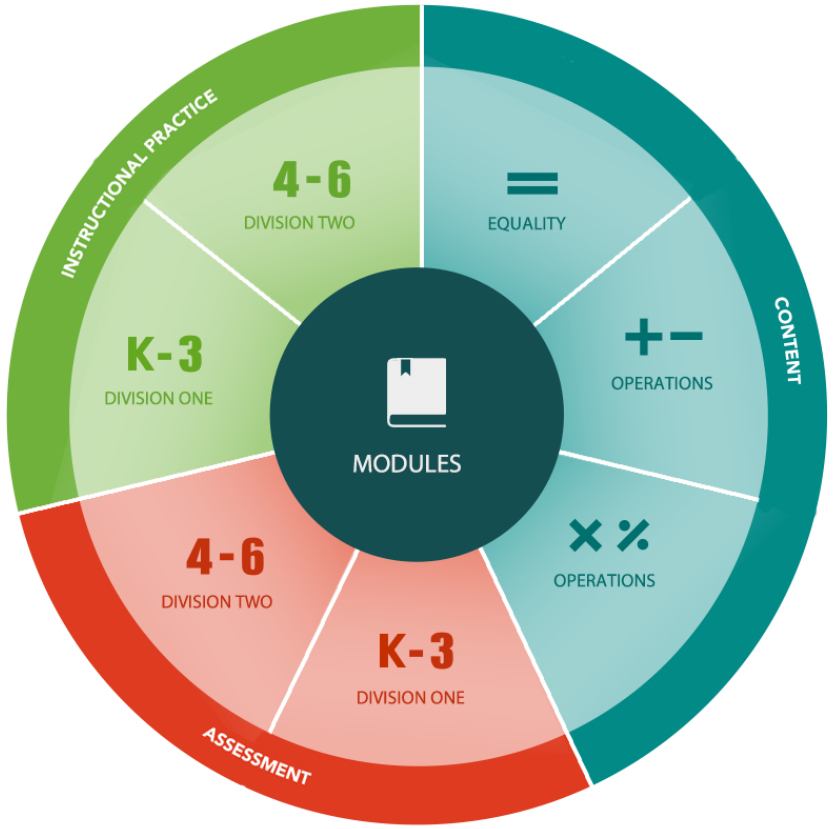

Bonus:
Mathematics K-12
Scope and Sequence AB Ed

-outlines the progression of concepts in the programs of study
- highlights the connections between strands, topics and grades.

http://learning.arpdc.ab.ca/course/view.php?id=351

Exit Card

1-thing I learned or affirmed
1-suggestion for future learning
1-comment about presentation

THANK-YOU